On Trial—Social Relations of Map Production in Mid-Nineteenth-Century Britain

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On Trial—Social Relations of Map Production in Mid-Nineteenth-Century Britain

Charles W. J. Withers

ABSTRACT: This article examines the social relations of map production in mid-nineteenth-century Britain with reference to moments when maps and their makers were 'on trial'—legally in court in Edinburgh in 1853 and by public opinion in London in 1854 following a lecture. The principal protagonists include Alexander Keith Johnston of the map firm W. & A. K. Johnston, the German cartographer August Petermann, the mapseller Trelawney Saunders and John Bartholomew junior of the Bartholomew map firm. The article draws upon Thomas Gieryn's idea of the 'truth spot' and on Matthew Edney's call for studies in processual map history.

KEYWORDS: social relations of map production, Alexander Keith Johnston, W. & A. K. Johnston, August Petermann, Trelawney Saunders, Norton Shaw, John Bartholomew senior, John Bartholomew junior, Archibald Fullarton, Royal Geographical Society, 'truth spot', credibility, trust, exploration, processual map history.

This article is a study of how certain maps, particular cartographers and established processes of map making came to be 'on trial', first in 1853 in a court of law in Edinburgh, and then, more informally but no less publically, in 1854 after a lecture in London. It is also about how contemporaries judged the accuracy of maps and the credibility of their makers. The protagonists included leading nineteenth-century cartographic figures: the Scottish cartographer Alexander Keith Johnston of the Edinburgh-based map-making firm W. & A. K. Johnston; the German mapmaker August Petermann; the London-based mapseller Trelawney Saunders; the Edinburgh publisher Archibald Fullarton;

and the two John Bartholomews (senior and junior) of the Edinburgh mapping firm of that name.

The 1853 court case came about when Alexander Keith Johnston accused Archibald Fullarton of copying several maps from his *National Atlas of Historical, Commercial, and Political Geography* (1843) and including them, without acknowledgement, in the latter's *Companion Atlas to the Gazetteer of the World* (1851). The trial, brought 'at the instance of The Atlas Company of Scotland [W. & A. K. Johnston] against Fullarton and Company', was held in Edinburgh in late July 1853.[1] The London affair erupted the following year after a lecture given by August Petermann, who had worked for both Johnston and Fullerton, at the Royal Geographical Society.

In the witness box at the Edinburgh trial, and at related events before and after, were issues of credibility, the function of maps, and the reputation of their makers. A close look at the moment when a mapmaker's reputation and his maps were on trial has revealed not only how the maps were produced, but also how they were received and interpreted. The disclosure of how and by whom they were made was the product of a particular setting, that of the courtroom. In referring to clinical trials in laboratories, surgeons' expertise in operating theatres and, as here, the claims made by those under oath in the witness box, the historian of science Thomas Gieryn has termed such a conjunction of physical site, authoritative testimony and personal credibility the 'truth spot'.[2]

Lying behind the 1853 Edinburgh trial were long-established relationships, notably those between Alexander Keith Johnston and August Petermann from 1845 to 1847, when the German geographer was producing maps for Johnston's atlas. Events and social relationships in London between 1847 and 1853 also moulded Johnston and Petermann's relationship. After Petermann's authoritative declarations in January 1854 at the Royal Geographical Society concerning British geographical exploration and mapping in Central Africa, differences of opinion were expressed in a different 'truth spot', and Petermann's work and credibility were subjected to critical review in public—in newspapers and periodicals—and in private correspondence by those who had heard his lecture.

These events and themes speak to wider questions. The first concerns the connections among nineteenth-century cartographers and the mapping firms in which they worked. What follows here does not directly challenge Scully's interpretation of British–German cartographical relationships in this period and, in particular, the close relationship between the Bartholomew firm and German map-making companies that he describes as 'cartographic freemasonry', but it does complicate his analysis.[3] The second theme relates to how we should

understand the social relations of map production as part of critical map history, particularly in response to Matthew Edney's urging that renewed attention be paid to the discourses making up what he terms 'processual map history'.[4] A processual approach 'necessarily holds out for a historical understanding not only of specific mapping moments but also for how those moments might relate to one another'.[5] In this article I examine two key moments—the 1853 Edinburgh trial and the events in London in 1854—and the social relations between mapmakers that explain them.

Johnston vs. Fullarton, Edinburgh 1853

The work that W. & A. K. Johnston sought to protect in court in July 1853 had been long in the making. In 1835–1836, the firm advertised its intention to publish a 'new Geographical Atlas' that would, in its variety, coverage, up to dateness and accuracy, 'excel any geographical work of a similar description yet given to the world', a quality that, when it came to the trial, was made abundantly clear to the jurors.[6] After spending about £5000, taking two years in research and another five years in compilation and correction, the result was the publication in 1843 of *The National Atlas of Historical, Commercial, and Political Geography.* The author was Alexander Keith Johnston.[7]

In his Preface, Johnston described the twin purpose of his undertaking: 'first, to exhibit accurately the existing state of Geography; and, secondly, to illustrate and popularize, by Map delineation, some of the most attractive departments of Natural Science'.[8] He also stressed his indebtedness to others:

> In the section devoted to Physical Geography, the Editor has had the honour of obtaining the assistance of Professor [Heinrich] Berghaus of Berlin, whose contributions, founded on the researches of [Alexander von] Humboldt, [Sir David] Brewster, [Robert] Jameson, [Sir William] Whewell, and others eminent in scientific inquiry, have excited much attention on the Continent; and will, it is presumed, be regarded by the British Public as amongst the most successful essays ever made to epitomise the facts and inductions of Physical Philosophy.[9]

When Berghaus sent his four maps to Johnston for *The National Atlas* on 3 January 1843, he acknowledged not only the British scholars but also Humboldt and the other Europeans involved:

> I now submit to the friends of Geography in Britain four sheets of my Physical Geography, which differ from those of the German edition, in being much larger and more complete. Should these be appreciated, I shall, in conjunction with my friend Mr A. K. Johnston, gladly continue them.[10]

Contemporaries acknowledged the connections between Johnston's works, especially between the *National Atlas* (1843) and the maps from Berghaus's

Physikalischer Atlas (1837–1848). They appreciated the European expertise that informed the Edinburgh publication and the illustration of physical geographical processes provided by the maps and their promotion of natural philosophy. Several of those to whom Johnston had turned for advice likewise acknowledged the accuracy and significance of his achievement.[11] In his annual address for 1843, the president of the Royal Geographical Society, William R. Hamilton, applauded the way Berghaus's maps render '*visible* the progress of geographical science'. He went on to praise Johnston:

> I cannot pass over the mention of [Berghaus's] very valuable work without expressing my satisfaction that through the enlightened enterprise of Mr. A. K. Johnston, Geographer to the Queen at Edinburgh, we shall be put in possession of it in an English dress. Some of the sheets have already appeared, and will tend materially to increase the interest felt amongst us in the science of Geography.[12]

Hamilton later reviewed the work at greater length.[13] Modern scholars have also recognized the connections between Johnston's *National Atlas* and Berghaus's *Physikalischer Atlas* and the difficulties the close association between the two men and their works presented for the attribution of originality.[14]

In 1851, almost a decade after the *National Atlas* was first published, Fullarton and Company (another Edinburgh firm) issued the prospectus of a projected *Companion Atlas*, published in monthly parts, in association with their *Gazetteer of the World* that had been published a year or two earlier.[15] This atlas, which appeared under the name of George Swanston, one of Fullarton's map engravers, stressed its accuracy and visual appeal in its full title, *The Companion Atlas to the Gazetteer of the World, Comprehending Forty-Eight Beautifully Coloured Maps; Engraved in the First Style of Art according to the Latest and Most Authentic Information*.[16]

Johnston immediately brought suit against Fullerton, charging he had copied five of the six maps in the first two numbers (Scotland, the world in hemispheres, South America, Europe, North America; the exception being France): they had, Johnston argued, been 'pirated from, the corresponding maps in the *National Atlas*'.[17] This was no mere threat to Johnston's international scholarly reputation, nor even simple anxiety about damage by association to his firm's local credibility.[18] Copying maps without acknowledgement was a breach of copyright. It threatened sales of their atlas. It devalued the expertise upon which their work was undertaken. The summons set out his demands clearly.[19]

When proceedings opened on 27 July 1853, Alexander Keith Johnston was the first in the witness box. After interrogation over the length of time he had worked on the *National Atlas*, questions turned to the map of Scotland and the

sources used in its compilation. In reply, Johnston cited the work of local mathematician William Galbraith who had helped in the surveying.[20] Johnston stated that he had also used earlier county surveys, including those in John Thomson's *Atlas of Scotland*.[21] When parts of the Fullarton publication with the map of Scotland and the others engraved by George Swanston were handed to him, Johnston declared how 'At first sight it struck me as a copy of my own map of Scotland, contained in the "National Atlas". I inspected it more closely, comparing it with my own, and the result was to convince me that it was a mere mechanical copy of my map'.[22]

It is not difficult to identify Swanston's work for the Fullarton's *Companion Atlas* since the title page of each number lists the compiler. Swanston was indeed responsible for the five maps in question together with a further 22 of the total 48 maps in the work. The other engravers were John Bartholomew junior, who worked with Swanston on maps of European Russia and of the east coast of South America and as sole author of maps of the British Empire, a railway map of the British Isles, the Turkish Empire, Japan and the Indian Archipelago; Bartholomew and August Petermann as the joint authors of the map of the west coast of South America; and Petermann as sole author of the map of British possessions in Australasia and of Greece, the last of which he based largely on British hydrographic surveys. The remaining maps were compiled by John Hugh Johnston (no relation).[23]

While Alexander Keith Johnston's reputation depended on his own proficiency and the years spent on the atlas, proving his case rested on admission of deficiencies in his own maps. After emphasizing the accuracy of his own work, the network of expertise that contributed to it, and the external reviews of its quality, Johnston turned to errors in his 1843 atlas copied by Fullarton's staff as proof of their pirating. From the Scotland map, for example, Swanston had reproduced errors in the coastline, place-names and the classification of lighthouses (Plate 00). Where Johnston had corrected his 1843 work in the years following its publication, Swanston had replicated the original errors although he had had the opportunity to make the amendments since, as Johnston testified, he 'was at one time in my employment. He left me in 1846 or 1847'.[24] Under cross-examination, Johnston repeated his views, observing furthermore that Swanston 'may have worked at the pantograph' in his copying of outlines from one map to another. Re-examined by his own counsel, Johnston confirmed that the maps of Scotland and of Europe, which had been obtained by court order from Swanston's place of work, showed traces of the pantograph.

The next witness was David Craig, an engraver who had worked with Swanston before leaving his employ in 1851. Craig confirmed that Swanston copied the outline of Scotland for Fullarton: 'I saw him make it. It was made by

a pantograph'. On being shown the map, Craig confirmed that 'it was taken from Johnston's map of Scotland' and concluded by relating how 'There was a good deal of talk in Swanston's shop as to the drawing of the maps, and a good deal of joking about the ways in which the maps were made. We had a laugh at the idea of him taking them from Johnston's Atlas'.[25]

In the witness box for the prosecution, Trelawney Saunders, a London mapseller, confirmed that the maps of Scotland, North and South America, and Europe had been copied from the Johnston atlas by use of the pantograph. Other witnesses also testified to the use of the pantograph and to the fact of Swanston's copying. Thomas James de Bourgho, a draughtsman for the Ordnance Survey, drew lines on another copy of Swanston's map of Scotland in order to confirm that it was a copy of Johnston's. John Dower, a London engraver of geographical works, found in court that the two maps of Scotland corresponded exactly to those in Johnston's *National Atlas* and that they bore 'evidence of a pantograph throughout'. The testimony of William Wood, an employee of the Ordnance Survey and, formerly, of Swanston, was no less unequivocal, as the official report of the trial related:

> Mr Wood … saw some of them in the course of being pantographed from the maps of the 'National Atlas'. Among these were the maps of France, North and South America, and the World in Hemispheres. Being shown the Map of the Hemispheres, and the corresponding pencil drawing, witness said — That is the map I saw; this is the drawing from the map by the pantograph. It was Swanston who used the instrument.[26]

The credibility of the witnesses for the prosecution depended upon several factors: their shared experience in map production; their recollection of work-place practices; their drawing in court of lines in pencil and of marks in red crayon to see if outlines corresponded; and the use of the pantograph observed at work, as several witnesses testified, in Swanston's hands. It also rested on first-hand inspection of the maps themselves as these were passed, back and forth, between witnesses, presiding judge, and the two solicitors as they each looked for indentations and traces that might bear material witness to the claims alleged.

Opening the case for the defendants, H. J. Robertson, solicitor for Messrs Fullarton, raised an important point about the nature of mapping. The Johnston firm's case hinged, he argued, upon the correspondence of their maps with those in the Fullarton atlas—what he termed 'the similitude of outline'. Surely, Robertson argued,

> if different maps of the same country are differently made, they must agree in their outlines. The same spots must ever be in the same degrees of latitude and longitude, and the sweep and outline of a country between these points must, when carefully observed,

present the same appearance. It is the filling in of the interior of a country which really constitutes the map.[27]

Simple resemblance between the several maps in question, he continued, was surely inevitable and a consequence of the mapmakers' expertise in ensuring their maps were accurate representations of the territory in question. What distinguished such separate maps was the use of different scales, the positioning of features, the use of shading and the alignment of names, and so on. Of these matters, there was 'ample evidence' to assert that Swanston and others working for Fullarton had not copied from the Johnston work.

On cross-examination, however, witness statements over the use of the pantograph proved crucial. On the Fullarton side, John Hugh Johnston compounded the allegation of copying by admitting that he had taken the topography for Fullarton's *Commercial Atlas* from W. & A. K. Johnston's *National Atlas*, in the same way that he had derived work for Johnston from Thomson's 'County Atlas' (the *Atlas of Scotland*). For John Dunlop, one of Swanston's engravers, the pencil lines, red marks and faint traces left by the pantograph on the Fullarton material presented in court were, in his eyes, not the result of replicating Johnston's work but had been made 'to ascertain the difference of the names published in Fullarton's maps and those of the Atlas Company'.[28]

Summing up on behalf of W. & A. K. Johnston, the firm's counsel emphasized the credibility and accuracy of their *National Atlas*, and of Alexander Keith Johnston in particular, by referring to the outlay of time and expense and the network of people upon whom the work was based. Fullarton, he said, could vouchsafe no similar evidence 'either in their record [the firm's publishing records] or in the witness box. No evidence has been led by them indicating what authorities they have consulted, or from what sources they have collected the geographical information which they present to the world, engraved on the maps of their "Companion Atlas"'. Worse still, the lawyer continued, was the refusal of the defendants to put Swanston in the witness box: 'Where is their engraver Swanston? Is he dead, or sick, or mad, or incapable of giving evidence, that he has not been examined in this trial! No! he has been in Court during the trial, but he has not been called, just because the Defenders dared not put him in the witness-box'.[29]

The argument about the outline of the several countries on the five maps in question being simply a reflection of mapmakers' shared practices in representing the world was dismissed. So was the defendants' testimony about up to dateness. The fact that Fullarton's employees had copied from the Johnston atlas of 1843 for the 1851 publication when, between 1843 and 1849

(the date Fullarton had engraved the relevant plates), many initial errors had been corrected by Johnston and others invalidated claims by Fullarton's counsel that the work for Fullerton was based on 'the most recent and authentic sources'.[30] Evidence to the contrary in their own work ruled against them, almost literally so as it was seen by all in court that the alleged copies of the maps from the 1851 *Companion Atlas* that were circulated as material evidence '*do* bear traces of the pantograph having been at work upon them'. Moreover, as counsel for W. & A. K. Johnston reminded the jurors, several witnesses had attested to malpractice at work.[31] After withdrawing for no more than twenty minutes, the jury returned to court; they had found in W. & A. K. Johnston's favour on all issues with 200 pounds damages.

The Edinburgh court in July 1853 was a 'truth spot' because of what was attested there, and how, and by whom. The court upheld the Johnston claim in various ways. Fullarton's maps bore silent witness to the traces of the instruments used in their making. The spoken testimony of expert witnesses established the credibility of one mapmaker by denying others' claims. Witnessing meant more than one thing, but what mattered most was being a witness in court. The claims concerning Fullarton's improper copying and employees' use of the pantograph were established by visual corroboration in a site beyond the court—where Swanston and others worked. Several witnesses said they saw copying take place at Swanston's place of work—and how it was joked about.

The Edinburgh trial and the role played by first-hand witness in establishing the validity of Johnston's claims—the acceptance of fraudulent practice because the witnesses has seen this with their own eyes and because, upon cross examination, they had testified orally to the material traces on the maps presented to them—has important implications for a processual map history of map production. The nineteenth-century 'truth spots' were also 'speech spaces': the nature of the physical site and its attendant social and epistemological practices actively constituted what could be said, how and by whom, a notion that has implications for our thinking about contemporaries' truth claims over what maps were, whose they were and on what grounds.[32] As Graeme Gooday and others have noted, the distinction between liars, experts and authorities in the nineteenth century was often influenced by post-event journalistic constructions of the performance of the witnesses as to whether they were convincing as 'expert' and as regards their moral standing (as we shall see in connection with Petermann).[33]

Ascertaining the truth of Johnston's allegations and his credibility also depended on who was and was not called to bear witness. George Swanston was not a witness, although he was present in court. August Petermann and John

Bartholomew junior could not be, since both were in London. John Bartholomew senior was in court yet was not called to give evidence. He wrote to his son on the day the trial closed, observing that the verdict of £200 with associated costs would 'be a heavy blow to Fullarton, it being generally thought that £1000 will scarce clear them' and wondering 'how it may affect Swanston I do not know, but he is pretty much in my debt & if he goes to the wall I will get a sub'. The Edinburgh newspapers, he went on, had given a 'short and incorrect report' of the trial, calling it 'an action for damages for publishing maps in every respect similar to Johnston's — which is very far from true'. There were, he admitted, differences between the Fullarton and the Johnston maps, but a deciding factor was when 'men who had wrought in Swanston's shop were brought forward to say that they actually saw some of the Maps under the Pantograph it had a great effect'.[34]

Bartholomew also described to his son how

> The idea of the Pantograph seemed to absorb everybody — & I was asked by a person beside me what sort of a thing this Pantograph was & if it did not transfer the whole work to the plate, letters and all. — Johnston was somewhat cross-questioned about it; & strove to make it appear that he made little use of it — no doubt from being such a great & original Geographer — but the fact is, that before he had any Pantograph of his own he employed me to do that sort of work generally & in particular at the time the National Atlas was commencing — such Maps as England, France, Spain & Portugal, Belgium, Switzerland, Italy, Russia, Sweden & Norway, (as I see from my old work book) were my Drawing — some of them being traced the very same size as the Copy furnished — how my evidence as to that might have affected the trial I cannot tell — but I was not summoned on it.'[35]

For us, the correspondence between Bartholomew father and son illuminates the Edinburgh map trial from outside the witness box, with its social networks, the importance placed upon the pantograph and the erroneous newspaper coverage. The whole affair casts light not solely on the trial, but also on British–German cartographic relationships and the social relations of map production, aspects that are highlighted yet further when we consider the relationships between Johnston, Petermann, Bartholomew junior and Trelawney Saunders over the longer term.

Johnston's Relationship with Petermann

The importance of investigating the individual and institutional relationships underpinning the social nature of map production has often been stressed.[36] In the context of those relationships described above, this means considering the initial working relationships between Alexander Keith Johnston and August Petermann, and the ones between Petermann and Trelawney Saunders, to

discover what they had been before the 1853 Edinburgh trial compared with what they were subsequently.

Johnston first met Petermann in 1842, in Potsdam, where Petermann was an employee at Heinrich Berghaus's Geographical School. Johnston, who had been working on his atlas project since the mid-1830s, had decided to seek Berghaus's advice and set out for Germany in April that year. The contact indeed helped shape Johnston's 1843 *National Atlas,* as has been noted, as it would his *Physical Atlas* of 1848.[37] Although intellectually productive, the relationship was not socially wholly harmonious. While in Potsdam, as Johnston told Norton Shaw, he had observed to Berghaus that 'Having examined their [the German cartographers'] mode of constructing and engraving maps, I expressed my surprise and told them they were half a century behind us in all their processes'.[38] Whatever the truth of this observation, and Johnston's purpose in making it, the effect was to prompt Berghaus to propose that Johnston should take Petermann who, he said, was a 'deserving lad' as an apprentice or half journeyman into his 'Establishment'.[39] In the event, Petermann remained in Johnston's employ in Edinburgh for two years from June 1845.[40]

On the surface, Johnston was at first supportive, endorsing Petermann's nomination for fellowship of the Royal Geographical Society (Fig. 1).[41] Later, though, the relationship was fractious (it may have been so from the outset) as is clear from a letter of May 1854 from Johnston to Norton Shaw, secretary of the Royal Geographical Society:

> I have much reason to condemn Petermann's unprincipled conduct, and could have exposed him as a mere pretender years ago, but I cherish no vindictive feelings, and agreed with my friend Mr Pentland that he would soon be found out in London, and brought down to his proper level. My only wonder is that he deceived you all so long, and my greatest regret is that with only flimsy parts, he should have been trumped up by the London Press as an Authority in Geography.[42]

Although the existence of Johnston's letter is well known, its content and wider context have so far escaped comment.[43] In the first place, it is a commentary on events in London that came to a head in January 1854 with Petermann's lecture to the Royal Geographical Society, which is, in part, what Johnston was referring to in writing of 'Petermann's unprincipled conduct'. At the same time, the allusion to 'deception' is Johnston's recollection of his, and others', working relationship with Petermann over a period of time.

Petermann arrived in Edinburgh without means of support, and Johnston had to lend him 2 pounds before he could pay customs duties at Leith and offload his trunk. Finding that Petermann had no means of subsistence other

than what he could earn, Johnson put him on the time list at a much higher rate than he was entitled to (6d per hour) and told Shaw that 'Under the instruction of my men he got on pretty well with engraving, and all hands being required the following year for Railway plans, this was quite a harvest for him, but even in this there was exhibited that want of principle afterwards so plainly shewn'.[44]

Continuing his letter, Johnston turned to Petermann's work and to his moral conduct. He told Shaw that 'All my people have considered him very superficial, and provided he could get up an appearance of work he cared nothing for either accuracy or solidity. He was afterwards put under one of my draughtsmen, and learned to draw, for of this he was quite ignorant when he came, although Berghaus and he led me to believe very differently'.[45] As Johnston explained, Petermann '… with my other assistants [was] employed in drawing part of the Maps for the "Physical Atlas", under my direction and with the extensive correction in all that he attempted'.[46]

Johnston went on to report that Petermann was planning to return home: 'At this time 1846–7 he pretended that he and [Heinrich (Henry)] Lange were preparing to commence business together in Germany (Frankfurt or Vienna being fixed on). Lange's father was to supply the capital. In this I believe Lange was sincere but the dupe of his wily companion'.[47] Petermann approached Johnston for material on which they had worked together. He begged Johnston that he be allowed to put his name as draughtsman to 'one or two of the plates of the 'Physical Atlas', — only for a few copies and to be afterwards removed', to which Johnston ' foolishly consented, not suspecting the use he meant to make of it.[48] Petermann also begged of Johnston's brothers, William and Thomas, 'to be allowed copies and prices of our maps, plans and other things, [which] he got under the strict promise that they were not to be shewn or made use of in this country, but only in Germany'.[49] Petermann left W. & A. K. Johnston 'in the summer or autumn of 1847, stating that after a short stay in London he would proceed direct to Germany'.[50]

Petermann did go London, but remained there for seven years. In 1848, Johnston discovered that he was still there and working for the publishers William Orr & Co. Johnston told Shaw that Orr & Co. were advertising plans for a *Physical Atlas* by Petermann and that its cover stated that Petermann had been engaged as 'Superintendent of the Geographical Establishment at Potsdam', and that he had been Johnston's assistant in the production of the *Physical Atlas*. Johnston made no comment on Petermann's self-aggrandisement regarding his employment by Berghaus, but the publishers of the *Physical Atlas*, William Blackwood and Son of Edinburgh, insisted that Petermann withdraw that part of the announcement. Johnston did accuse Petermann of 'falsehood' in respect of his role in the *Physical Atlas* and

threatened to explain in an advertisement that Petermann had nothing to do with that work 'except as one workman among many'.[51] Petermann apologised humbly but did not attempt to vindicate himself. Instead, he pleaded necessity as his motive, leading his erstwhile employer to infer that he had been 'driven to dishonest practices by want'.[52]

In London, Petermann's poor behaviour was cast further into relief by the mapseller Trelawney Saunders. Saunders informed Johnston that Petermann had offered to sell him 'a so-called original map of the Orography of the British Isles'.[53] Hearing Saunders's description of the map, Johnston handed him the real original, from which Saunders immediately recognized the copy and the nefariousness of the transaction. Johnston was urged to prosecute Petermann, but did not, observing that the question of work published by Orr and advertised as being by Petermann had come up in the 1853 Edinburgh trial, at which Thomas James de Bourgho, a witness for the Johnstons, testified that 'a hydrographical map of the British Isles, by A. Petermann' was an exact copy of one undertaken by Johnston.[54]

In his letter to Shaw, Johnston made no attempt to disguise his feelings about the matter and gave a detailed account of the situation:

> The facts are these, I planned such a sheet for the 'Physical Atlas' and set Petermann to make numerous extracts from a mass of materials in my possession, Railway sections &c but finding a great quantity of materials about Ben Nevis district I furnished him with instruments and sent [him] to take barometrical measurements and plans printed out. I paid his expenses and on his return employed him at weekly wages to reduce his observations, and as he was very desirous to try his hand at an original construction I gave him the opportunity.[55]

Petermann's work, however, was unsatisfactory. Johnston bemoaned the 'labour and expense thrown away' with a design 'so faulty in construction and false in arrangement, that it was quite unfit for publication', reckoning that it must have cost him more than £30.[55] Petermann must have obtained an identical copy of this map surreptitiously, and this is what he offered to sell to Saunders.[56] Almost despairingly, Johnston told Shaw that 'from numerous facts that have transpired since [Petermann] left, I find there was no truth, or accuracy in anything he did. All was for present show'.[57]

In drawing his recollections to a close, and moving on to discuss recent affairs in London, Johnston returned to his long-term relationship with Petermann and Berghaus, telling Shaw that he had ascertained that their proceedings had been Jesuitical from the outset. Berghaus had arranged for Petermann to be put under Johnson's tuition on the promise that, as soon as the young man had learned his profession he would return to his position in

Potsdam, as he led Berghaus to believe up to the last. Berghaus deserved to be treated in this way, said Johnston, but Petermann was no less guilty, acting throughout with 'utter want of principle & anything like honesty'.[58]

The evidence in Johnston's letter to Norton Shaw suggests that the relationships between the British and German academic cartographers fits Scully's definition of 'freemasonry', that is, characterized by an open and mutually profitable exchange of ideas and expertise. [59] If we see the German side as having assumed the role of mentor to a British junior partner, the description fits the institutional connections between the German firm of Justus Perthes and the Edinburgh firm of John Bartholomew and Son.[60] It is not, though, an appropriate interpretation of the personal relationship between Johnston and Petermann. Scully's claim about the 'close relations' between W. & A. K. Johnston, Justus Perthes and 'Berghaus's brilliant protégé August Petermann' disguises the day-to-day working practices between Johnston and Petermann.[61]

We might suppose that Johnston, writing to Norton Shaw almost ten months after the Edinburgh trial, still had that event in mind and wanted to use that experience to discredit Petermann in the light of different circumstances, but other parts of Johnston's letter seem to contradict this. Johnston sought, rather, to minimize his own public exposure and protect a reputation he considered tarnished by his association with Petermann. He wrote as much to Shaw, saying: 'Having no personal feelings to gratify by his exposure, all interest in him ceased and concern about his doings ended in 1848; — I am therefore desirous that my name should not appear in any papers farther than what may be needful in the way of allusion to me or my Establishment as the means of his being in the country at all, or of his ever having been heard of, I believe'.[62]

It is worth noting that Johnson did not mention John Bartholomew junior who, like Petermann, was working for Fullarton under George Swanston compiling maps for their *Commercial Atlas*. If Johnston bore either Bartholomew or Swanston a degree of personal animus—he obviously did to Petermann—he did not declare it to Shaw. Petermann and John Bartholomew junior are likely to have met in Edinburgh, perhaps while employed by Fullarton, but their close connection developed in London when the junior Bartholomew was associated with Petermann for about a year, from March 1853 until the latter departed for Gotha in June 1854.[63] The younger Bartholomew entertained the idea of moving to work with Petermann in Germany although he never did.[64] Johnston's accusations of Petermann's 'unprincipled conduct', deception and map theft certainly attest to friction in the working and social relationships of individual cartographers.

Reputations on Trial: London, 1847–1854

To understand why Johnston complained about Petermann in the way, and when, he did, we need to review Petermann's position and reputation in London following his arrival from Edinburgh in 1847. For Petermann, London was 'undoubtedly the central point of geographical knowledge, at least for the non-European parts of the globe'.[65] Here he was involved in mapping Palestine for Orr & Company, principally compiling materials from the work of others. In this respect, Petermann was reflecting the widespread interest in scriptural geography and the mapping the Near East as a whole, projects in which other German geographers and cartographers such as Carl Ritter and Heinrich Kiepert, as well as Christian Karl Josias von Bunsen (known as 'the Chevalier Bunsen'), the biblical scholar and Prussian ambassador in London, were involved.[66]

During Petermann's first three years in London he worked with the engraver John Dower (who would speak on Johnston's behalf, against Petermann, in 1853) on various projects for Orr & Company, including railway maps (which may have been 'borrowed' from Johnston.[67] He also produced maps to illustrate papers published in the Royal Geographical Society's *Journal*. In 1849 he approached the Society's President and Council with plans for an atlas of the British Empire and two maps for a project he had undertaken in 1848 in the hope of soliciting both the Society's and Queen Victoria's formal support. He described the 'grand object of this work' as helping to introduce 'a more extensive application of Maps in the representation of Geographical Science'.[68] The Society was facing financial difficulties at the time and did not support him. Like many other geographers and natural scientists at the time, Petermann then turned his interest to Sir John Franklin's polar expedition, lost in the Arctic since 1847.[69]

Johnston, though, did not see Petermann's commentaries as his own work: 'no one here believes that he wrote those papers on the Arctic discoveries & printed in his name. … They contain expressions which could only be used by an Englishman, and this plan of passing off this work of others for his own is, I have found, quite an old practice of his'.[70] Whatever its origins and whoever the real author might have been, the proceeds of Petermann's Arctic, Palestine and other work were sufficient for him to move in 1852 into new premises, at 9 Charing Cross in London.[71] In June 1852, Petermann adopted the title 'Physical Geographer and Engraver on Stone in Ordinary to the Queen'.[72]

One aspect of Petermann's London activities that has so far escaped attention is his role in advancing himself as an authority on African exploration and mapping in connection with the British-funded Mission to Central Africa.

His maps of the route of the 'Central African Expedition', as the Mission was known, were to inform the public of the expedition's achievements. The expedition had started out in 1849 with the aim of abolishing the slave trade and establishing commercial relations with peoples in the regions south of the Sahara and west of Lake Chad. Its leader was James Richardson, the British clergyman-explorer. Richardson appointed two German scientists, Heinrich Barth and Adolph Overweg, as his assistants.

When Richardson died from fever in March 1851, the expedition continued under the Germans' management. After Overweg's death in September 1852, Barth took charge. In 1853, another German scholar, Eduard Vogel, was despatched to the expedition with particular responsibilities for astronomical observations and scientific measurement. On their return to London, Richardson's papers became the basis of the publication in 1853 of the expedition's work and achievements.[73]

Before then (and even after the posthumous publication of Richardson's records) Petermann was acting, with Christian von Bunsen, as a self-appointed link between the expedition, the Royal Geographical Society, the British government and the public. In this context, he seems to have shown some sensitivity at an early juncture to his position. In November 1850—four months before Richardson's death—he wrote to Norton Shaw about Shaw's plans to cover news of the expedition in the *Athenæum*: 'I should be glad, if in your announcement of the paper in [the] "Athenaeum" you had mentioned Mr Richardson's name, or put the wording differently, the expedition being under his direction. There may be people who would find fault with me about it'.[74]

Notwithstanding this apparent delicateness, Petermann continued in his unofficial role. A year later, he wrote to Shaw intimating that he had had news in a private letter from Overweg and praising his countryman's efforts.[75] By 1853, as news of Richardson's and Overweg's deaths had reached the public and as Petermann's control of news of the expedition tightened, the press in London had grown accustomed to Petermann as geographical intermediary.[76]

To some in the mapping community and at the Royal Geographical Society, Petermann's role was both unwarranted and unwelcome. They felt that he was manipulating the public in general and the British cartographical and geographical authorities in particular for his own interests. What seems also to have irked was his practice of accompanying notices of the expedition's progress with the declaration that he was 'Physical Geographer and Engraver on Stone to the Queen', as if that gave him a Royal imprimatur for his mediating role.[77]

Things came to a head in the lecture room of the Royal Geographical Society at the meeting on 9 January 1854. The evening was devoted to four papers. Petermann's 'Latest accounts of the Mission to Central Africa' was the first read.[78] Unfortunately, the surviving minutes do not record the discussion that followed any of the papers. However, Trelawney Saunders had taken issue with Petermann's role and the claims made in his lecture, expressing his objections in public as well as more fully in private correspondence. Thus, from Saunders's communication published five days later in the *Nautical Standard and Steam Navigation Gazette* we know there had been 'animated discussion' , in which 'Mr Arrowsmith [the mapmaker John Arrowsmith], Mr Montgomery Martin, Mr. T. Baines and others took part'.[79]

Saunders made several points about Petermann's control of information that, he said, should 'have been accessible to English geographers, and other promoters of science among our countrymen'. He was vehement about German involvement in British African exploration, which in Saunders's view reflected poorly on earlier British exploration in Africa and on current work and mapping there irrespective of the Germans' presumed expertise. In a comment directed at Eduard Vogel's work (or the lack of it), he observed that 'In nothing that has transpired hitherto from this expedition, has anything appeared to alter or add materially to our previous knowledge, with the exception of a few altitudes which have yet to be confirmed'. Saunders closed his vituperative commentary with a reference to the expedition map promised by Petermann, 'the materials for which, being contributed by his countrymen, have been made accessible to him *only*. Is it still intended to appear soon, or has Mr Petermann discovered, as is suspected, the inferior nature of the observations upon which he is to found a new map of Central Africa?'.[80]

Petermann had begun a map relating to the expedition in December 1851. His letter to Norton Shaw to this effect stressed that he had kept costs down in doing so and (as if to confirm Saunders's later criticism) that he alone was privy to the information it contained: 'Besides I have supplied the information (which no one in this Country, not even Lord Palmerston and the Chev. Bunsen possesses) — of the General route, and which is of very great interest, — with a readiness as not every one of my colleagues would have done'.[81] The map remained a work in progress. Petermann added to it as new information was received by him and as he discussed its content and implications in conversations with the Chevalier Bunsen. In March 1852, further work was in hand that allowed him to incorporate the route of a previous African explorer, Dixon Denham, and in November, Petermann was billing the Royal Geographical Society for work undertaken.[82]

By February 1854, maps based on the expedition's work had been included in a description of Richardson's expedition, *An Account of the Progress of the Expedition to Central Africa*, which ran to fourteen pages and three maps (Fig. 2). Despite having played no part in the expedition, Petermann's name was on the title page.[83] Petermann took issue with Saunders's criticism in the *Nautical Standard* of 14 January 1854 with another pamphlet called *African Discovery: A Letter to the President and Council of the Royal Geographical Society*, which he completed on 18 March 1854.[84] Here Petermann was anxious to protect the reputation of his fellow Germans and Vogel's fieldwork. He denied that he and the Chevalier Bunsen had undue influence over news of the expedition, but admitted that he had not passed on to Shaw and the Royal Geographical Society information as it reached him. To have done so would have delayed publication since the Society's *Journal* was now (that is, under Shaw) published only once a year, not in two or three parts as previously. Moreover, the Society frequently kept such communications from the public for several years after they had been read at the Society's meetings. In contrast, he pointed out, 'information contained in the *Athenæum* and other *regular* journals, is at once available to every educated person of the civilised world'.[85]

Petermann's jibe alluded not only to the many articles on the Richardson expedition that had appeared in the *Athenæum* and elsewhere under Petermann's name, but also to the fact that Shaw had not brought forward Petermann's lecture despite having published other material relating to the Central Africa Mission in the same year in the Society's *Journal* under Eduard Vogel's name.[86] He reproached Shaw for not disowning himself and the Society from Saunders's 'scurrilous and offensive publication'. The whole affair, declared Petermann, did not reflect well on the public reputation of the Royal Geographical Society. He demanded to know if the Society was a medium for slandering German travellers and geographers and exciting national animosities. In asking if the Society was prostituting itself to gratify the personal spite of an individual who was abusing their authority, he declared it his 'painful duty to draw the attention of the Council to it [as] it is for them to inquire of Messrs. Shaw and Saunders who authorized its publication'.[87]

No public record exists of any formal rejoinder to Petermann's view that the Royal Geographical Society was, in effect, an 'untruth spot'. Saunders wrote in private at length to Shaw in April 1854, saying that Petermann had 'made no reply whatever to the very simple questions which I put to him' [at the end of his lecture].[88] He, Saunders, was motivated, he assured Shaw, only by his concern that 'the occasional contributions of Government from the Public purse for the promotion of Scientific enquiries, should be applied to the encouragement of British enterprise & ability, to the enrichment of our own Collections, and to the extension of our own Commerce and influence'. His

personal feelings 'arose entirely from a feeling of justice aroused by the contents of [Petermann's] paper read before the meeting'.[89] This was not entirely true. Saunders did allude to Petermann's practice of self-promotion—'We are so accustomed to Mr Petermann's use of scientific communications to make use for advertising purposes that one reason for the publication of his pamphlet is evident'—and pointed out that the Royal Geographical Society had not yet received its copy of the work [Shaw had been sent a copy by Saunders].[90]

Overall, Saunders saw Petermann's *African Discovery* pamphlet as little more than 'a heap of spiteful assertions'. He pointed out that Petermann knew that the influence the Prussian Ambassador exercised over British foreign ministers had allowed him to monopolize the original documents, preventing his fellow German's work 'from being impartially examined by competent English geographers'. His ire was also directed at Heinrich Barth, who had sent his geographical findings from Africa to the Prussian authorities and the Geographical Society in Berlin. Saunders demanded indignantly why 'important Astronomical observations [taken on] an English Expedition' had been sent to Berlin for calculation. 'Was it unsafe or impolitic to trust an Englishman with the task? Could the data be accepted as authoritative? Why should the British Foreign Office authorize a Prussian to publish costly maps at British expense and then imply that these maps superseded the achievements of other geographers?' In short, opined Saunders, 'there was reason enough to believe that the whole production had been merely 'cooked'.[91]

A word of caution is needed before Saunders's letter is taken at face value. Despite his protestations to the contrary, much of his rhetoric has a distinctly anti-German note. Scully's view of generally harmonious cartographical relationships in this period should perhaps be qualified to allow for the extent to which physical proximity exacerbated Saunders's tone and exaggerated the content of his letter to Shaw; after all, Saunders' map-selling establishment at 6 Charing Cross was virtually next door to Petermann's at 9 Charing Cross. Other grievances were possible. Saunders could have felt aggrieved that Petermann's failure to produce the promised map of Richardson's Mission undermined his position as map curator to the Royal Geographical Society. He might have been upset that the absence of the map had led to the breaking down of other personal connections. Was it coincidence that the publisher of Petermann's *African Discovery* repudiation of Saunders was Edward Stanford, Saunders's business partner until their partnership had dissolved just a year earlier, in 1853?[92]

Matters of proximity, printed texts, manuscript correspondence and spoken exchanges in specific spaces are the very 'stuff' of site-sensitive studies in the historical geography of science as they are, I am suggesting, for the elucidation

of the social relations in the production of maps.[93] In emphasizing that such inquiries 'can never be *too* local', Stephen Shapin has argued for the need 'to understand not only how knowledge is made in specific places but also how transactions occur between places'.[94] The impression that Petermann had a case to answer was compounded by his silence in the otherwise 'animated discussion' that had apparently filled the Royal Geographical Society's lecture room on the evening of 9 January 1854 (just as Swanston and John Bartholomew senior had been silent witnesses at the trial in Edinburgh in July the year before).

Saunders's criticism of Petermann that reached print in the *Nautical Standard* was what he had directed orally at Petermann at the Royal Geographical Society meeting—without eliciting any response. Saunders might have been recalling how Petermann had earlier offered to sell him maps he had compiled while in Johnston's employ—maps that actually belonged to Johnston. In his turn, Petermann felt aggrieved, perhaps with justification, at other people's reaction in public to his role as intermediary for the Richardson expedition, as details in private unpublished correspondence make more evident than do the public printed exchanges. From those letters, for example, we learn that, in the eyes of his peers, Petermann had over-reached himself in promoting the work of others, and his own activities, to the British public and the geographical community.

Petermann must have been aware of the anti-German tenor of Saunders's rhetoric. He certainly had cause to feel slighted by Shaw's refusal to publish his evening lecture. What appears to have started in 1849 as an amicable relationship with Shaw had deteriorated markedly by 1854 in much the same way as his working relationship with Johnston had between 1845 and 1847. As Johnston noted in his letter to Shaw in May 1854, the 'surprise' lay not in Petermann's poor standards and lax conduct, but 'that he deceived you all so long, [and] … that with only flimsy parts, he should have been trumped up by the London Press as an Authority in Geography' (Fig. 3).[95]

The story ends badly. As the 'Richardson affair' came to a head, in the lecture room and in print, Petermann was in further bad odour with the Royal Geographical Society. He had abused, in August 1853, the borrowing regulations of the society's library (under Saunders's management), and he had delayed paying his 1854 subscription for a full year, only remitting it in late December 1855.[96] By then, August Petermann had left London. Exactly how, and to what extent, these circumstances and relationships influenced his decision to quit Britain must remain a matter of speculation.[97]

Processual Map History

The personal and institutional relations set out in this article illuminate the complexity of nineteenth-century map making in its many facets, most notably the social relations among cartographers and contemporaries' views as to what constituted a map and what was considered good practice in its production. We have seen how map production was debated in the law court, in the lecture room and in correspondence, and how reputations were publically and privately disputed.

The issues behind the Johnston–Petermann affair did not escape the notice of contemporaries. Norton Shaw who, with Alexander Keith Johnston, Trelawney Saunders, August Petermann and others, had experienced these things at first hand, was fully aware just how difficult, demanding and delicate a process map production could be. In 1862, he summarized the challenge: 'A Map has been designated the perfection of short-hand, and true Map-making may be said to belong at the same time to the fine arts, and to the exact sciences. But with how great difficulties is not the process of Map-making encumbered?'[98]

The map historian today can see beyond the day-to-day predicaments that afflicted Shaw and his colleagues, and I conclude by reflecting on some of the broader implications. The first point to stress is the importance of local perspectives in addressing the processes by which maps have been made in the past. Mapmakers need to be seen not only in their relationships with each other but also in their local settings. It is from the particularities of place—a legal court, a spoken encounter—that insight is gained into the processes of making maps, and into the relationships among their makers. The emphasis on local site and on process is not new; it is found in the history of science and in book history.[99] For map history, the argument is about the importance of recovering complexity, knowing the difficulties contemporaries faced to be contextually critical and, following Shapin, of being sufficiently local in its scrutiny.[100] In such vein, Gieryn's notion of the 'truth spot' allows us to see, for a specific place at a particular moment, how relationships and processes came together around criteria of justification and credibility, and the means by which these were established in that place.[101]

The second implication concerns processual map history. For the concept to mean something, we need to identify the precise processes involved and how contemporaries understood them. In the context of the present article, the map-making processes were technical, instrumental and observational (as in the witnessed use of the pantograph). They were legal and illegal (as in the fraudulent copying). The processes by which mapmakers secured their reputation included the time spent on the task, accuracy of content and whether

it was up to date, and the expertise evident in others' work. An individual's credibility might be unwarranted (as Johnston alleged of Petermann). The notion of process extends to the way mapmakers came to know each other. It also includes the map itself, not so much its 'meaning', as attributed to it by us, but as to how it was understood and received in its day by different audiences.

For a final glance at the ways these processes were played out for one of the protagonists in the Edinburgh case we can turn to George Swanston, Fullerton's engraver. Even the anticipation of the trial of July 1853 affected his relationship with John Bartholomew senior, for whose company he also worked. Swanston was growing anxious over what Alexander Keith Johnston would say. As Bartholomew informed his son in late June 1853,

> Swanston has been down with his Map of Scotland done for Fullarton being sadly annoyed with Johnston as having infringed on their Copyright & wanting me to compare it & to make out that it contains matter in common with other authorities.

He continues, admitting to indecision:

> I am very reluctant to have anything to do with such a matter & am at a loss what to say about it — as yet I have not troubled myself with it.[102]

Whereas Bartholomew senior's hesitancy might explain why he avoided being a witness, for Swanston the prospect of the trial had an adverse effect on his working relationship with the Bartholomews, just as the trial itself affected his connections with W. & A. K. Johnston. The senior Bartholomew continued by observing that 'Swanston says it has been a great drawback to getting on with his work & makes that an excuse for having no money to give me though he is now due me a good deal'.[103]

Several months after the trial, Bartholomew senior recorded its effect on Swanston, the Fullarton Company, and other mapping and printing concerns. He told his son that Fullarton's had crashed. The firm had, as he understood, already long been 'in a somewhat tottering position', but the lawsuit had provoked a crisis. He understood that, although work seemed to be continuing as usual, they were 'offering their Creditors a compromise of 12/6 per pound to be paid in 3 years', and he did not see how they could keep Swanston on longer than absolutely necessary.

As for the Edinburgh publishers W. R. Chambers, Bartholomew senior had heard that immediately the outcome of the trial was known they had recalled their copper plates and other materials from Swanston and intended to have them checked and overhauled. The firm, he went on, was in a panic lest they would find themselves in the same mess as Fullerton, since some of their maps

were also no more than reductions derived from Fullarton's (the map of Scotland was one that needed to be cancelled). He concluded with his own problem: 'What the upshot of all this will be as to my claim on Swanston I am not yet sure about as I have got nothing from him this good while though I have no doubt that he will get at least his money for what has been done'.[104]

The other Edinburgh firm in this generally sorry tale of social relations in map production was W. & A. K. Johnston. In their case, however, not all the local connections that had soured reached court. In 1856, the firm had been in dispute with William Blackwood, the publishers of their *Physical Atlas*, over Blackwood's failure to meet deadlines and keep to agreed prices. The issue simmered at least to February 1863, when Alexander Keith Johnston wrote amicably to his Blackwood counterpart expressing his hope that the matter could be resolved 'without the risk of a Jury trial, to which it threatens to drift!'[105] Since no more is heard of the dispute, it may be assumed that it was resolved without further ado.

The personal reputation of Johnston, however, whom Bartholomew senior saw as a 'great and original Geographer', was not shared by all his contemporaries. In the previous decade, Heinrich Kiepert, who had worked with both Johnston and Petermann, was astonished at the errors Johnston had introduced into a map of Palestine and insisted that Johnston insert a note of correction. Like everyone who sought credibility in map production, Kiepert had his status to consider, telling Johnston he hoped he would 'find no harm in that demand which I owe to my reputation as a geographer'.[106] Although neither of these last instances concerning Alexander Keith Johnston had its roots in the trial of 1853 or the London affair the year after, they were no less part of the complex working relationships among mapmakers in mid nineteenth-century Britain.

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NOTES AND REFERENCES

[1] John Duncan, *Report of the Trial at the Instance of the Map Company of Scotland against A. Fullarton and Company, Publishers, Edinburgh and London. Tried before a Jury at Edinburgh on the 27th, 28th, and 29th Days of July 1853* (Edinburgh, William Blackwood and Sons, 1853). Duncan, the nominal author, was the principal advocate [solicitor] overseeing the case.
[2] Thomas Gieryn, 'Three truth-spots', *Journal of the History of the Behavioral Sciences* 38:1 (2002): 113–32; Thomas Gieryn, 'City as truth-spot: laboratories and field-sites in urban studies', *Social Studies of Science* 36:5 (2006): 5–38.
[3] Richard J. Scully, '"North Sea or German Ocean"? The Anglo-German cartographic freemasonry, 1842–1914', *Imago Mundi* 62: 1 (2009): 46–62.
[4] Matthew H. Edney, 'Academic cartography, internal map history, and the critical study of mapping processes', in 'People, places, and ideas in the history of cartography', ed. Michael Heffernan, *Imago Mundi* 66: Supplement (2014): 83–106, quote on 96.
[5] Edney, 'Academic cartography' (see note 4), 98.
[6] As was reported in court, 'In the accomplishment of this undertaking, all the geographical information which could be found in the writings of English, French, American, Spanish, German, and Italian authors was carefully collected and studied. Maps were obtained from different countries for consultation and comparison; an extensive correspondence with various eminent *savants* and geographers was entered into; repeated journeys were made at great expense; and, in a word, neither time, money, nor labour was spared in collecting a varied mass of geographical facts and data, and in arranging and presenting the same to the reader in the most compact, clear, and useful form' (Duncan, *Report of the Trial* (see note 1), 2).
[7] Full details are in Alexander Keith Johnston, *The National Atlas of Historical, Commercial, and Political Geography Constructed from the Most Recent and Authentic Sources* (Edinburgh, John Johnstone and W. & A. K. Johnston, 1843). In works of this nature, the distinction between 'author' and 'editor' is unclear. As the title suggests, this was a composite work (a fact Johnston acknowledged). I have taken Johnston to be the author (a fact that contemporaries recognized), although, as the quote on page 00 shows (and see note 8 below), Johnston also termed himself 'Editor'.
[8] Alexander Keith Johnston, 'Preface to the GENERAL GEOGRAPHY', in *The National Atlas of Historical, Commercial, and Political Geography* (see note 7),

unpaginated but, from foliation, page i. The Preface is dated June 1843; the emphasis is Johnston's. The underscorings are in the original.
[9] Ibid.
[10] [Heinrich] Berghaus, in Johnston, 'Preface to the PHYSICAL GEOGRAPHY', in *The National Atlas of Historical, Commercial, and Political Geography* (see note 7), unpaginated but, from foliation, page ii. The four physical maps in question were Alexander von Humboldt's system of the isothermal lines of the globe; a survey of the cultivation of the principal plants; the geographical distribution of currents of air; and the mountain chains of Europe and Asia. A fifth thematic map supplied by another German was an ethnographic map of Europe by Gustaf Kombst who had been working in Edinburgh since 1836. The 'German edition' referred to was Berghaus's *Physikalischer Atlas*, on which he had been working since 1827.
[11] National Library of Scotland Acc.5811/24 is a notebook containing copies of letters, dated between 1841 and 1844, to Alexander Keith Johnson about his *National Atlas*. There are letters from historian Archibald Alison; Julian R. Jackson of the Royal Geographical Society (see also note 12 below); Robert Jameson, Professor of Natural History at the University of Edinburgh who advised that he would recommend the work to his students; John Walker, Geographer to the East India Company; Thomas Stewart Traill, Professor of Medical Jurisprudence, University of Edinburgh (who recommended additions Johnston might make in the course of further work); Lord Greenock; James Forbes the physicist; William Whewell; and astronomer Lt. General Sir Thomas Macdougall Brisbane. Each was highly complimentary of the work.
[12] William Richard Hamilton, 'Address to the Royal Geographical Society', *Journal of the Royal Geographical Society of London* 13 (1843): lviii. The address was crafted by the then Secretary of the Royal Geographical Society, Julian R. Jackson. In offering his own congratulations to Johnston regarding the *National Atlas*, Jackson confided that 'In preparing the latter [the President's annual address for 1843], I had inserted a good article in praise of your exertions and your establishment which I was very sorry to find the President thought proper to omit'. Letter from Julian R. Jackson to Alexander Keith Johnston, 3 August 1843, National Library of Scotland Acc. 5811/24 [letter number 6]. An earlier exchange of letters shows that Jackson was under the impression that the W. & A. K. Johnston firm was a geographical institute, something akin to the RGS in London, not just a map publisher. Jackson had written of his 'highest gratification to learn that an establishment has been formed in the Sister Country [Scotland], so eminently calculated to advance the progress of Geographical Science'. Letter from Julian R. Jackson to Alexander Keith Johnson, 21 November 1842, National Library of Scotland Acc. 5811/24 [letter number 3].

[13] On this occasion, Hamilton praised in particular the four maps that illustrated relationships between the earth's surface features and natural processes (see note 10 above): 'They embody the most recent discoveries and consequent rectifications of the theory of the earth'. He understood the association between the German Berghaus and the Scot Johnston as equal and important in promoting geography and natural knowledge: 'It is for this reason that we wish to see the conjoint labours of Professor Berghaus and Mr. Johnston prosecuted further'. William R. Hamilton, [Review of] '*The National Atlas of Historical, Commercial, and Political Geography. Constructed from the Most Recent and Authentic Sources* by Alexander Keith Johnston', *Journal of the Royal Geographical Society of London* 13 (1843): 156–60, quotes from 159, 160 respectively.

[14] For the most detailed modern account, see Gerhard Engelmann, 'Der Physikalische Atlas des Heinrich Berghaus und Alexander Keith Johnston's Physical Atlas,' *Petermann's Mitteilungen* 108 (1964): 133–49. See also Rodney Shirley, 'Berghaus and Johnston: pioneers of the thematic atlas', *IMCOS: Journal of the International Map Collector's Society* 83 (2000): 31–35; James McCarthy, *Journey into Africa: The Life and Death of Keith Johnston, Scottish Cartographer and Explorer (1844–79)* (Latheronwheel, Whittle Publishing, 2004), 31–36; Haim Goren, Jutta Faehndrich and Bruno Schelhaas, *Mapping the Holy Land: The Foundation of a Scientific Cartography of Palestine* (London, I. B. Tauris, 2017), 108–12; David Smith, 'The business of "W. & A. K. Johnston" 1826–1901', *IMCOS: Journal of the International Map Collectors' Society* 82 (2000): 9–20; Scully, 'North Sea or German Ocean'? (see note 3). On Petermann and German atlas publishing more generally, see Imre J. Demhardt, *Der Erde ein Gesicht Geben. Petermann's Geographische Mitteilungen und die Anfänge der Modernen Geographie in Deutschland* (Gotha, Forschungsbibliothek Gotha, 2006); and Jürgen Espenhorst, *Petermann's Planet: A Guide to German Handatlases and Their Siblings throughout the World 1800–1950*, 2 vols. (Schwerte, Pangaea, 2003–2008).

[15] Usually catalogued as Archibald Fullarton, *Now Publishing, in Monthly Parts, Divisions, and Volumes, by A. Fullarton and Co., Glasgow, the Topographical, Statistical, and Historical Gazetteer of Scotland* (Glasgow, Fullarton, n.d.?). To judge from the trial evidence, it is likely that this dates from *c*.1849, or possibly 1850.

[16] George H. Swanston, *The Companion Atlas to the Gazetteer of the World, Comprehending Forty-Eight Beautifully Coloured Maps; Engraved in the First Style of Art according to the Latest and Most Authentic Information* (A. Fullarton & Co., Stead's Place, Leith Walk, Edinburgh, and 115 Newgate Street, London; Fullarton, MacNab & Co., 182 Broadway, New York, 1851).

[17] Duncan, *Report of the Trial* (see note 1), 3.

[18] Johnston's brother William, a partner in W. & A. K. Johnston, Lord Provost of Edinburgh from 1848 to 1851, had been knighted by Queen Victoria in 1851 for service as Her Majesty's Engraver and Copperplate Printer since 1837. Nothing in surviving accounts of the 1853 trial suggests that, as prosecutors, the Johnston firm drew upon the local prestige of William Johnston as a civic dignitary or that of Alexander Keith Johnston as a leading mapmaker. William simply noted in his diary that Fullarton's maps in their *Companion Atlas* were 'barefaced copies of those in their *National Atlas*' and recorded the verdict. National Library of Scotland, Acc. 5811 (5) [Volume 2 of the Johnston's family history, in manuscript], fols.126–127.

[19] These demands were 'payment to the Pursuers [Prosecutors], in name of damages, of £1000'; a prohibition upon Fullarton from selling or publishing the first and second parts of their *Companion Atlas* or any other maps from the *National Atlas*; all copies of the maps in the Fullarton work and all the copper plates used to produce them to be the property of W. & A. K. Johnston; all copies and copper plates should be delivered to the Johnstons, to be destroyed, 'or otherwise rendered unfit for publication' (Duncan, *Report of the Trial* (see note 1), 3).

[20] William Galbraith had taught mathematics, natural philosophy, navigation and nautical astronomy at the Commercial Academy in Edinburgh at least from 1832 (*Edinburgh Evening Courant*, 1 November 1832). There is no surviving evidence of any contractual connections between Galbraith and Johnston, but it is clear that Galbraith took a close interest in Scotland's mapping. In January 1844, Galbraith observed to Johnston how after a 'rigorous examination of your National Atlas just published and in impartial justice I must admit that in accuracy of construction and elegance of execution it is superior to any other with which I am acquainted' (National Library of Scotland Acc. 5811/24 [unfoliated but letter number 10]). Galbraith had died in 1850.

[21] John Thomson's *Atlas of Scotland* appeared in parts over a decade from 1822. The undertaking bankrupted Thomson in 1832, and the map material became the property of W. & A. K. Johnston. For a summary of the Thomson *Atlas*'s making, see Christopher Fleet and Paula Williams, '"From the Best Authenticated Source": the making of John Thomson's Atlas of Scotland', in John Thomson, *The Atlas of Scotland, Containing Maps of Each County, with Introductory Essays by Charles W. J. Withers, Christopher Fleet and Paula Williams* (Edinburgh, Birlinn in association with the National Library of Scotland, 2008), xii–xxiii.

[22] Duncan, *Report of the Trial* (see note 1), 7.

[23] Swanston, *The Companion Atlas to the Gazetteer of the World* (see note 16 above), Title page [i].

[24] Duncan, *Report of the Trial* (see note 1), 8.

[25] Ibid., 10.

[26] Ibid., 14.
[27] Ibid., 16.
[28] Ibid., 20.
[29] Ibid., 22.
[30] Ibid., 27.
[31] 'But to dissipate entirely every shade of doubt as to the illegal conduct of the Defenders—if indeed the faintest doubt *can* now remain in your minds on the subject … we have presented before you three witnesses [who] actually saw with their own eyes the Pursuers' maps of *Scotland*, the *World in Hemisphere*, *North America*, and *South America*, in the very course of being copied by the pantograph. What evidence more satisfactory, more convincing, more infallible than this, could have been adduced in a court of law in proof of the frauds and piracies of the Defenders?' (Duncan, *Report of the Trial* (see note 1), 26).
[32] See, for example, Miles Ogborn, 'The power of speech: orality, oaths and evidence in the British Atlantic world, 1650–1800', *Transactions of the Institute of British Geographers* 36: 1 (2011): 109–25; Diarmid A. Finnegan, 'Placing science in an age of oratory: spaces of scientific speech in mid-Victorian Edinburgh', in *Geographies of Nineteenth-Century Science*, ed. David N. Livingstone and Charles W. J. Withers (Chicago, University of Chicago Press, 2011), 153–77; Diarmid A. Finnegan, 'Finding a scientific voice: performing science, space and speech in the nineteenth century', *Transactions of the Institute of British Geographers* 42: 2 (2016): 192–205; James A. Secord, 'How scientific conversation became shop talk', *Transactions of the Royal Historical Society*, Sixth Series 17 (2007): 129–56. On 'location and locution', see David N. Livingstone, 'Science, site and speech: scientific knowledge and the spaces of rhetoric', *History of the Human Sciences* 20 (2007): 71–98.
[33] Graeme Gooday, 'Liars, experts and authorities', *History of Science* 66 (2008): 431–56; Christopher Hamlin, 'Scientific method and expert witnessing: Victorian perspectives on a modern problem', *Social Studies of Science* 16 (1986): 485–513.
[34] National Library of Scotland, Bartholomew Archive, Acc. 10222/11, Letter from John Bartholomew senior to John Bartholomew junior, 30 July 1853. Emphasis in original.
[35] Ibid. Emphasis in original.
[36] For example, Matthew Edney, 'Mathematical cosmography and the social ideology of British cartography, 1780–1820', *Imago Mundi* 46 (1994): 101–16; Matthew Edney, *Mapping an Empire: The Geographical Construction of British India, 1765–1843* (Chicago, University of Chiucago Press, 1997); Charles W. J. Withers, 'The social nature of map making in the Scottish Enlightenment *c*.1682–*c*.1832', *Imago Mundi* 54: 1 (2002): 46–66; Scully, 'North Sea or German Ocean?' (see note 3); Mary Sponberg Pedley, *The Commerce of Cartography: Making and Marketing Maps in Eighteenth-Century*

France and England (Chicago, University of Chicago Press, 2005); Susan Schulten, *Mapping the Nation: History and Cartography in Nineteenth-Century America* (Chicago, University of Chicago Press, 2012); Richard Oliver, *The Ordnance Survey in the Nineteenth Century: Maps, Money and the Growth of Government* (London, The Charles Close Society, 2014).

[37] Alexander Keith Johnston, *The National Atlas of Historical, Commercial, and Political Geography Constructed from the Most Recent and Authentic Sources by Alexander Keith Johnston … Accompanied By Maps and Illustrations of the Physical Geography of the Globe by Dr. Heinrich Berghaus … and An Ethnographic Map of Europe by Dr. Gustaf Kombst* (Edinburgh, John Johnstone and W. & A. K. Johnston: Glasgow, James Lumsden and Son, and Robert Weir; London, Simpkin, Marshall, & Co.; Whittaker & Co.; W. Smith; and R. Groombridge; Dublin, John Cumming, 1843); Alexander Keith Johnston, *The Physical Atlas: A Series of Maps & Notes Illustrating the Geographical Distribution of Natural Phenomena by Alexander Keith Johnston … Based on the Physikalischer Atlas of Professor H. Berghaus* (Edinburgh, William Blackwood & Sons, 1848).

[38] 'Extracts of a letter from A. K. Johnston Esq of Edinburgh, Geographer to the Queen, to Dr Norton Shaw, Secretary Royal Geographical Society, 5 May 1854', Archives, Royal Geographical Society (with IBG), JMS/1/45 [CC 2–3]. This letter exists in two forms under the same shelfmark. Both are in Alexander Keith Johnston's hand. One version is a fair copy, the other appears to be the 'rough' draft, in which some words differ and to which comments have been added. Neither version has page numbers. In what follows, I cite from the clean copy, noting it as 'CC' and mention the 'rough' copy ['RC'] only where the variation is significant to my argument.

[39] Ibid., [CC 3].

[40] McCarthy, *Journey into Africa* (see note 14), 36, erroneously gives the date of Petermann's arrival in Edinburgh as 1844: this was the year in which the proposal that Petermann should come to Edinburgh was finalized between the several parties. Goren, Faehndrich and Schelhass, *Mapping the Holy Land* (see note 14) correctly give the year as 1845 but overplay the role of Gustaf Kombst, the German cartographer and ethnographer then resident in Edinburgh and a contributor to Johnston's *National Atlas* in acting as go-between. There is no evidence that this was the case, in Johnston's letter at least.

[41] Francis Herbert, 'The Royal Geographical Society's membership, the map trade and geographical publishing in Britain, 1830 to *ca* 1930', *Imago Mundi* 35 (1983): 87. Petermann was elected Fellow on 22 June 1846. Besides Johnston, his nominators were Lord Colchester and Thomas Lee.

[42] Johnston to Norton Shaw, 5 May 1854 (see note 38) [CC, 1]. The Joseph Pentland referred to is the geographer and natural scientist Joseph Barclay Pentland (1797–1873) who surveyed the Bolivian Andes between 1826 and

1827 before taking up a diplomatic appointment in that country, and in 1833 returning to the UK. His friendship with Alexander Keith Johnston was facilitated through shared connections with publisher John Murray, who published the Society's *Journal*, and for whom Pentland wrote three handbooks in Murray's *Handbook* series.

[43] The Johnston–Peterman relationship is alluded to by Herbert in 'The Royal Geographical Society's membership' (see note 41 above), 71. Johnston to Norton Shaw, 5 May 1854 (see note 38), who is followed by Smith, 'The business of "W. & A. K. Johnston"' (see note 14). Despite this demonstration of the by then strained relationship between Johnston and Petermann, evidence elsewhere speaks to a warm relationship between the two, at least in earlier years (before 1847–1848). For example, a friendly dedication to Petermann in Johnston's own hand is found on title jackets of the first edition of Johnston's *Physical Atlas*, on Part I (which appeared in 1846), and on Part VI (1847, possibly 1848), in the Perthes Collection in Gotha (folder SPB 2° 1010.89); I am grateful to Professor Imre Demhardt for this information. Professor Demhardt's current research on Petermann and his mapping and his forthcoming monograph will shed further light on the nature and timing of the connections between the two men.

[44] Johnston to Norton Shaw, 5 May 1854 (see note 38).

[45] Ibid., [CC,4].

[46] Ibid., [CC, 4].

[47] Ibid., [CC, 4].

[48] Ibid., [CC, 4–5]. Emphasis in the original.

[49] Ibid., [CC, 4–5]. Emphasis in the original.

[50] Ibid., [CC, 5].

[51] Ibid., [CC, 5]. In an insertion in the 'rough' copy of the letter, Johnston noted how 'In the Advertisement in the Athenaeum &c he [Petermann] falsely styles himself Secretary to the Royal Geographical Society of London'. In the 'clean' copy, this wording appears as a footnote: [CC, 5].

[52] Ibid., [CC, 6]. According to a footnote in this part of the letter, this matter dates from May and June 1848, but the letter alluded to, from A. K. Johnston to Trelawney Saunders, 20 May 1848, has not been located. Emphasis in the original.

[53] Ibid., [CC, 6].

[54] Duncan, *Report of the Trial* (see note 1), 12, 26. Others' testimony confirmed de Bourgho's claim.

[55] Extracts of a letter from A. K. Johnston Esq of Edinburgh, Geographer to the Queen, to Dr Norton Shaw, Secretary Royal Geographical Society, 5 May 1854 (see note 38), [CC, 6-7].

[56] Ibid., [CC, 6-7].

[57] Ibid., [CC, 7]. This map was also the subject of attention in the 1853 trial. Johnston finished by saying 'Failing in his attempt to sell my material to Mr Saunders, he appears to have made use of these in his Hydrographical & Orographical Map of the British Isles, which has [as] proved in the copyright case sent herewith, is stolen wholesale from my National Atlas Map' (ibid., [CC, 8]).
[58] Ibid., [CC, 9]. Emphasis in the original. The family-published centenary history of the firm makes no mention of the Johnston–Petermann relationship, noting only that Alexander [*sic*] Petermann ['a future famous German cartographer'] came to the W. & A. K. Johnston offices in St Andrew Square in 1845. [Anon.] *One Hundred Years of Map Making: The Story of W. & A. K. Johnston* (Edinburgh, W. & A. K. Johnston, 1925), 10). In his unpublished diary, William Johnston makes no mention of this element of the working relationships of his brother (see note 18 above).
[59] Scully, 'North Sea or German Ocean?' (see note 3), 47.
[60] Ibid.
[61] Ibid., 48.
[62] Extracts of a letter from A. K. Johnston Esq of Edinburgh, Geographer to the Queen, to Dr Norton Shaw, Secretary Royal Geographical Society, 5 May 1854 (see note 38), [CC, 1]. In the 'rough' copy, Johnston initially wrote 'in your papers', referring to material that Shaw was gathering over the Peterman lecture of 1854: ibid., [RC, 2]. In the clean copy, this is amended to 'in any papers'.
[63] Scully, 'North Sea or German Ocean?' (see note 3), 48, notes that Petermann began a connection with the younger John Bartholomew in 1848, 'while visiting Edinburgh'. Given the German's presence in the city from June 1845 and their later joint employment by Fullarton, it is probable the two met before 1848.
[64] Bartholomew senior dissuaded his son from moving to Germany on the grounds of language difficulties, the differences in mapping techniques between Germany and Britain, and the importance of working for the family firm in Edinburgh (National Library of Scotland, Bartholomew Archive, Acc 10222/11, Letter from John Bartholomew senior to John Bartholomew junior, 6 September 1853). Bartholomew was initially appointed by Petermann for 6 months at 20/- a week for 10 hours a day (National Library of Scotland, Bartholomew Archive, Acc 10222/11, Letter from John Bartholomew senior to John Bartholomew junior, 6 September 1853).
[65] Letter of August Petermann to Justus Perthes 10 September 1847, cited in Goren, Faehndrich and Schelhaas, *Mapping the Holy Land* (see note 14), 112.
[66] On scriptural geography as a form of geographical enquiry in the nineteenth century, see Edwin James Aiken, *Scriptural Geography: Portraying the Holy Land* (London, I. B. Tauris, 2010). On mapping the Near East, Palestine included, see Haim Goren, *Dead Sea Level: Science, Exploration and Imperial Interests in the Near East* (London, I. B. Tauris, 2011); and Daniel Foliard,

Dislocating the Orient: British Maps and the Making of the Middle East, 1854-1921 (Chicago, University of Chicago Press, 2017). Bruno Schelhaas discusses Petermann's Palestine mapping and his London years in his chapter 'August Petermann's Palestine maps', in Goren, Faehndrich and Schelhaas, *Mapping the Holy Land* (see note 14), 107–39, esp. 112–29. For a detailed account of Petermann's London years, see Philipp Felsch, *Wie August Petermann den Nordpol erfand* (München, Luchterhand Literaturverlag, 2010).

[67] Schelhaas, 'August Petermann's Palestine maps' (see note 66), 114.

[68] August Petermann to the President and Council of the Royal Geographical Society (Royal Geographical Society (with IBG), Archives, CB3/614, 5 May 1849). Petermann's then residence and workplace was 47 Cranbourn Street, London.

[69] On the Franklin disaster and its treatment by nineteenth-century commentators, see Adriana Craciun, *Writing Arctic Disaster: Authorship and Exploration* (Cambridge, Cambridge University Press, 2016); and Huw Lewis-Jones, *Imagining the Arctic: Heroism, Spectacle and Polar Exploration* (London, I. B. Tauris, 2017).

[70] Extracts of a letter from A. K. Johnston Esq of Edinburgh, Geographer to the Queen, to Dr Norton Shaw, Secretary Royal Geographical Society, 5 May 1854 (see note 38), [CC, 8]. Two years earlier in a letter to Norton Shaw, Petermann had remarked on the cost of the Franklin rescue missions and in language that might have ruffled Shaw's feathers, if not those of others in the Royal Geographical Society, spoke of plans to bring forward further work on Arctic exploration to be used by the Society's President in his 1852 annual address. He wrote that 'I think I cannot do better than give you (on the other page) what I shall probably make the Titlepage of a little publication I am about bringing out [*sic*]; there are unassailable facts which I believe every body will understand, having no admixture of Isothermal Lines or any other "Physics" so distasteful to many of the practical men of the Old School'(August Petermann to Norton Shaw, 24 April 1852, Archives, Royal Geographical Society (with IBG), CB4/Petermann [no foliation]).

[71] On the letterhead to his business correspondence, Petermann described his establishment at 9 Charing Cross, London, as the 'Geographic Establishment Engraving, Lithographic & Printing Office'.

[72] Herbert, 'The Royal Geographical Society's membership' (see note 37), 87. This title, which appears to have been an act of self-promotion in that there is no formal record of Royal assent to Petermann's appointment, appeared also on Petermann's letterhead used in business correspondence from his offices at 9 Charing Cross, London (see note 71). Alexander Keith Johnston had received the title 'Geographer to the Queen', in June 1840, that is, before publication of his 1843 *National Atlas*. Whether Johnston's views of Petermann noted here were additionally coloured by the German's adoption of Royal patronage is not

clear from surviving evidence—it is unlikely that it would have eased relationships between the two.

[73] James Richardson, *Narrative of a Mission to Central Africa Performed in the years 1850–51, under the Orders and at the Expense of Her Majesty's Government*, 2 vols. (London, Chapman and Hall, 1853). Richardson's earlier *Travels in the Great Desert of Sahara, in the Years 1845 and 1846*, 2 vols. (London, Richard Bentley, 1848), which showed him to be an experienced traveller, had prompted Viscount Palmerston, British Foreign Secretary from 1846 to 1851, to ask him in 1848 to undertake a Mission to Central Africa on behalf of the British government, which wanted to eradicate the slave trade in West Africa. In *The Cruisers* (London, Hatchard and Son, 1849), Richardson argued against the views of others, who complained of the expense, for the retention of the British Navy's 'blockading squadron' off the West African coast. The posthumous *Narrative of a Mission* only partly reflected Richardson's detailed field journals, as the editor Bayle St. John noted in his preface to volume 1.

[74] August Peterman to Norton Shaw 25 November 1850, Archives, Royal Geographical Society (with IBG), CB3/614. Emphasis in the original.

[75] ' … there has never been a more intelligent, accurate and competent observer in the interior of Africa' (August Peterman to Norton Shaw 10 November 1851, Archives, Royal Geographical Society (with IBG), CB4/Petermann). Overweg's letter was addressed to his relatives, but Petermann had specifically requested it be passed to him.

[76] The *Athenæum* carried more than 119 text entries relating to Petermann between 1851 and 1854. The *Times* regularly carried news of the expedition and published letters by Petermann in which he commented upon his privileged access to news of this British-funded expedition.

[77] See, for example, *Athenæum*, No. 1321, 19 February 1853.

[78] It was accompanied by 'observations in N. Africa by Dr. Vogel, communicated by the Foreign Office'. The other papers were 'Geographical explorations in Southern Africa' by Mr Thomas Baines and others; the **'**Departure of Dr. E. G. Irving RN FRGS on his Mission to Western Africa'; and an **'**Account of the Steamer prepared to ascend the Niger and Chadda Rivers' by McGregor Laird Esq FRGS. Archives, Royal Geographical Society (with IBG), RGS Evening Minutes, November 1840–April 1856, fols. 262–263, 'Minutes of the Meeting of 9 Jan. 1854'.

[79] The comments by Trelawney Saunders and by Dr. E. G. Irving, RN FRGS to Norton Shaw were published under the title 'Royal Geographical Society' in *The Nautical Standard and Steam Navigation Gazette*, 14 January 1854, 26–27. The phrase 'animated discussion' and the words on English geographers are from page 26. Saunders had been appointed that year as an officer of the Royal Geographical Society to classify maps and books and was acting map curator

until 1857; see John Bolton,'Obituary: Trelawney William Saunders', *Geographical Journal* 36: 3 (1910), 364.
[80] Saunders and Irving, 'Royal Geographical Society' (see note 79), 26. The final quote, on the map, is from page 27. Emphasis in the original. The promise was made on 1 November 1853.
[81] August Petermann to Norton Shaw, 5 December 1851, Archives, Royal Geographical Society (with IBG), CB4/Petermann. Emphasis in the original.
[82] August Petermann to Norton Shaw, 3 March 1852, 1 November 1852, Archives, Royal Geographical Society (with IBG), CB4/Petermann.
[83] August Petermann, *An Account of the Progress of the Expedition to Central Africa, Performed by Order of Her Majesty's Foreign Office, under Messrs. Richardson, Barth, Overweg & Vogel, in the Years 1850, 1851, 1852, and 1853: consisting of maps and illustrations, with descriptive notes* (London, E. Stanford, 1854), 14 pages and three maps.
[84] August Petermann, *African Discovery: A Letter Addressed to the President and Council of the Royal Geographical Society of London, by Augustus Petermann* (London, E. Stanford, 1854), 16 pages.
[85] Ibid., 8.
[86] The published material comprised a letter from Vogel to Petermann, notes compiled from letters received by the sappers and miners on the expedition, and a table of geographical longitude and latitude readings, as communicated to the Foreign Office. The texts of the other speakers were published in full in the same and later issues of the *Journal*. See Edward [*sic*] Vogel, 'Mission to Central Africa', *Journal of the Royal Geographical Society of London* 24 (1854): 276–83.
[87] Petermann, *African Discovery* (see note 84), 10, 11.
[88] Archives, Royal Geographical Society (with IBG), Letter from Trelawney Saunders to Norton Shaw, 2 April 1854, JMS/1/45. Two versions of this letter survive in the archives of the Royal Geographical Society. Confusingly, both have the same shelfmark as Johnston's letter to Shaw in 1854 (see note 38). As with the Johnston–Shaw correspondence, there is an original 'rough copy' version, on which Saunders has made amendments and additions, and a final 'clean copy' in Saunders's hand: this, unfortunately, is not a complete version of the original 'rough copy' letter. I here cite from the 'clean copy' version.
[89] Trelawney Saunders to Norton Shaw, 2 April 1854, JMS/1/45 (see note 88), 2. Emphasis in the original.
[90] Ibid., 6–7.
[91] Ibid., 19–20.
[92] Bolton, 'Obituary: Trelawney William Saunders' (see note 79).
[93] Stephen Shapin, 'Placing the view from nowhere: historical and sociological problems in the location of science', *Transactions of the Institute of British Geographers* 23: 1 (1998): 5–12.

[94] Ibid., 6–7. Emphasis in the original.
[95] Johnston to Norton Shaw, 5 May 1854 (see note 38), [CC, 1].
[96] These details are clear from notes written on the back of a letter from Petermann to Norton Shaw, dated 9 April 1856. Petermann had handed a book from the library to a Mr Haug, who was planning an expedition to Australia: the book was never returned. Petermann sought to attribute the loss to Haug. But, as Shaw noted, Petermann had broken library rules and made false claims over his 'own authority' in lending the book to a non-member of the Society. Petermann's late payment of dues is also noted. Archives, Royal Geographical Society (with IBG), August Petermann to Norton Shaw 9 April 1856 [verso] CB4/Petermann.
[97] That Petermann was planning to leave London early in 1854 is clear from correspondence between members of the Bartholomew family. Writing on 2 May 1854 to his brother John Bartholomew junior, George Bartholomew enquires 'Cant [*sic*] you not tell us yet when Mr P. leaves for Germany and the exact day you are to leave London?' (National Library of Scotland, Acc. 10222/ 11). In a letter of 6 February 1854 to his son, John Bartholomew senior writes of the possibility of John Bartholomew junior 'going to such an establishment as that to which Mr Peterman [*sic*] is about to proceed', so making it clear that Petermann had plans to return to Germany from at least early 1854 (National Library of Scotland, Acc. 10222/11). Even so, there is no direct evidence in the material examined that the relationship with Alexander Keith Johnston, the concerns raised around the Richardson expedition and the lecture of 9 January 1854 and its aftermath were the cause of his decision to do so.
[98] Norton Shaw, 'Geographical notice to the Royal Illustrated Atlas', pages 3–5 of *The Royal Illustrated Atlas of Modern Geography* (A. Fullarton and Co., London and Edinburgh, 1862), 3.
[99] In the history of cartography, this is an issue addressed, among others, by David Turnbull, 'Cartography and science in early modern Europe: mapping the construction of knowledge spaces', *Imago Mundi* 46 (1996): 5–24; and Matthew H. Edney, 'Cartography without "progress": reinterpreting the nature and historical development of mapmaking', *Cartographica* 30: 2–3 (1993): 54–68. In the history of science, it is the subject of Shapin, 'Placing the view from nowhere' (see note 93); David N. Livingstone, *Putting Science in Its Place: Geographies of Scientific Knowledge* (Chicago, University of Chicago Press, 2003); and James A. Secord, 'Knowledge in transit', *Isis* 95 (2004): 654–72. There are parallels in book history and map history in the work of Elizabeth Eisenstein for whom printing secured uniformity in textual form and content over time and space, and Adrian Johns, whose focus in *The Making of the Book* is on local sites and the differences among and between workshop cultures of print and text making. For a geographical (and cartographical) discussion of this debate, see Miles Ogborn and Charles W. J. Withers, 'Introduction: book

geography, book history', in *Geographies of the Book*, ed. Miles Ogborn and Charles W. J. Withers (Ashgate, Farnham, 2010), 1–25.
[100] Shapin, 'Placing the view from nowhere' (see note 93) argues that one 'can never be *too* local' (page 9); emphasis in the original.
[101] Gieryn, 'City as truth-spot' (see note 2).
[102] National Library of Scotland, Acc. 10222/11 (see note 64), Letter from John Bartholomew senior to his son, 24 June 1853.
[103] Ibid.
[104] National Library of Scotland, Acc. 10222/11 (see note 64), Letter from John Bartholomew senior to his son, 5 October 1853.
[105] National Library of Scotland, MS 4182, fol. 11. Alexander Keith Johnston to John Blackwood, 14 February 1863. The letter, marked 'Private' (and in Johnston's hand), was clearly intended to mark a personal intervention over the long-running dispute between the two firms: Johnston offered to meet Blackwood 'On Monday next'. No further record of the dispute is present in Johnston material or in the papers of the Blackwood firm.
[106] Royal Scottish Geographical Society Archives, Letter from Henry [Heinrich] Kiepert to Alexander Keith Johnston, 30 July 1856. This and other Johnston letters in the RSGS are uncatalogued and held in a folder entitled 'Correspondence relating to A. Keith Johnson, handed in to Society by Mrs R Henderson'.